Good Morning

No. 351

The Daily Paper of the Submarine Branch
With the co-operation of the Office of Admiral (Submarines)

Can we make the moon—only another 216,998 miles to go?

PETER VINCENT reviews the efforts of the Rocketeers

THE answer is, of course, we can and will. But just how soon is another matter. The leading scientists and astronauts of the world agree that there is every chance of our starting off before the end of the 20th century.

Let's examine some of the difficulties involved.

The earth and moon were, once upon a time, a single sphere-shaped mass of swirling gases, rotating through the vast dark emptyness of space at tremendous speed. This mass slowly condensed into liquid and later semi-solid form.

During this condensation, which took millions of years, a part of the sphere became detached, and, hurled like some great comet by centrifugal force, formed into a smaller rotating sphere, which, ages later, condensed into the earth satellite—the moon.

To-day, approximately 3,000,000,000 years later, the earth's centre is still a molten mass. The moon, due to its smaller size, is already completely cooled.

Like most other members of the Solar System, which is what we call our particular group of planets, the moon is "dead." Lack of a surrounding layer of atmosphere makes it impossible for life to exist there.

One planet in our Solar System which might harbour life, as we know it, is Mars. Smaller than the earth (4,200 miles in diameter), it has a surrounding envelope of atmosphere, which, though stratospherically thin, contains oxygen. Mars's temperature would also permit life as it exists here.

It is impracticable to consider a trip to Mars at present, due to the astronomical distances involved, but our friend the moon is at certain times of the year, a mere 217,000 miles away! Not much more than eight times the circumference of the earth.

However, allowing 500,000 miles for a round trip, we realise that this is roughly 50 times as far as the longest ranged plane of to-day will take us—even ignoring the small matter of the earth's force of gravity acting on a 217,000-mile climb!

The various problems in the path of astronauts seem endless and impossible to solve. Nevertheless, great strides have already been made, particularly in the type of transport to be used.

Aeroplanes, as we know them to-day, would never get us above the limits of the atmosphere which envelopes the earth to a height of about 60 miles. This is because the aero engines of to-day can't operate without air, and at these heights there isn't any.

Rising through the troposphere, tropopause, stratosphere (above 25,000 feet) and ionosphere (from 80,000 feet), the gases which comprise air rarefy and disperse, until from about 60 miles up we enter the semi-vacuum and eternal night of interstellar space; night, because there is no air to reflect light from the sun.

Since, in the 500,000 miles of our proposed trip, only about 3,000 miles, at most, will be made in the atmosphere, we have obviously got to find the propellant which works most efficiently in partial or complete vacuum.

The most promising types of propulsion under these circumstances work on the well-known rocket principle. Most likely, the first conveyance to make the round trip will be rocket-propelled.

A rocket can travel in vacuum because the air needed to support combustion is carried within the rocket itself, usually in the form of compressed-air spheroids, or liquid oxygen.

Jet-propelled engines which scoop up air from the atmosphere as they go along would be as useless as present-day aero engines for this purpose.

Perhaps the most difficult problem to be tackled is the one of fuel. The fuels of to-day will never get us to the moon. They are not nearly efficient enough.

What we need is a fuel which will give sufficient power for its weight to enable the rocket to escape the earth's gravitational pull. To overcome this vast force, by the rocket's own centrifugal force, a speed of eight miles per second (about 29,000 m.p.h.) would have to be obtained.

Thus clear of gravity's pull, the rocket would continue indefinitely at the same speed at which it had left gravity's sphere of influence, without needing further propulsion. Hence, trips to the furthest planets are ultimately feasible.

The fuel which will be used will have to be in liquid form; powder fuel, though efficient per lb. weight, cannot be accurately controlled. By regulating the amount of liquid fuel injected into the combustion chamber, the rocket's speed can be adjusted and control of the engine maintained.

This problem of fuel, the gravest astronauts have to face, is as yet unsolvable. To get, for example, an 80-ton rocket travelling at the necessary speed, 48,000 tons of fuel would be needed!

To carry this enormous weight, the rocket would have to be built in five or six "steps," which could be jettisoned as they were used up. By this means, the rocket would only weigh one-tenth of its original weight when it reached the maximum speed.

In space, where no force of gravity exists, nothing weighs anything and anything also weighs nothing. This might cause complications! Since there is also no friction from the air, a rocket which enters space at, say, 20,000 m.p.h., will continue at 20,000 m.p.h. for ever unless directed into the gravity sphere of some other planet.

On the first trip the rocket would presumably only circle the moon, but on subsequent trips landings would have to be made, if only to establish fuel bases for further journeys deeper into space.

Lack of water and atmosphere on the moon would be the greatest drawbacks there. Explorers would have to wear some form of pressurised diving suit for "walking out."

The lunar day lasts half a month, during which time the moon is constantly exposed to the sun's heat. During the rest of the month it is shrouded in unrelieved night.

The moon's pull of gravity is only one-sixth that of the earth's, and therefore getting away from it should present no insurmountable difficulties.

On returning to the earth, we should have to slow down before we reached the atmosphere, by firing extra rockets from the nose of our rocket plane. By this method we could get the speed down until it was low enough for us to extend our retractable wings and tail unit, and safe for us to enter the atmosphere without friction between air and rocket shell causing the rocket to explode. Landing would then be similar to landing an ordinary high-speed aeroplane.

The multitude of problems which confront the pioneer space travellers can all be solved in time. Theirs will be the first step in the greatest adventure of mankind.

In the vast spaces of the Solar System the moon seems but a stone's throw from the earth. Yet the Solar System is, in turn, merely an infinitesimal part of the universe.

One of the best-known "rocketeers" of the world, Professor Robert Hutchings, of Clark University, U.S.A., has been experimenting with rockets since 1907. One of them has allready reached a height of one and a half miles.

Carry on, Professor! Only 216,998 miles to go!

"Blimey! Eighteen million surplus, and they threaten if amount is not paid within seven days, proceedings will be taken in court!"

The flags will fly A.B. Willie Baker

Willie Baker, sen. He was out on his rounds in town, but he sends you the best wishes to add to the others.

FATHER wants a brave show on "V-day," and Mother is doing her bit towards it. All the flags will be flying outside No. 108 Sticker Lane, Laisterdyke, Bradford, when peace comes.

Willie Baker, sen., father of A.B. Willie Baker, intends to be ready when V-day arrives. He brings them all home one by one, Union Jacks, Stars and Stripes, the Russian flag, and plenty of bunting, and Mother gets busy putting them on rope for the display.

"Twelve months ago Willie was last at home," Mother told us as she poured tea from one of the biggest teapots we've ever seen. "Give him our love and let's be seeing him again soon. Horace is convalescent in a South Wales hospital, so we may see him, too, before very long."

Bill O'Neil is still at Newboulds. He's married now, and lives in Sticker Lane with his wife and baby daughter.

Pity we missed Willie

YOU CAN SMILE AT THIS TOOTHSOME NEWS

HERE'S toothsome news about teeth! The whole of Britain is undergoing a vast dental change.

We used to be a nation whose teeth shocked the world. The odds against anyone over twenty-five in Britain having good teeth were eight to one. When we smiled, our cavities shocked strangers.

Typical of our past outlook, when illness broke out in the Cheshire Regiment during the Boer War and was traced to bad teeth, the War Office supplied, not dental treatment, but mincing machines!

Now we are leading the world in dental research. In the Strangeways Laboratory at Cambridge, false teeth have even been "grown" from embryonic portions of rats' teeth.

There are new filling materials of better colour than ever before, including a translucent cement which can be exactly matched to the teeth or the complexion. Dentists know that creamy teeth usually look better than the dead white variety.

For years dentists have been seeking the cause of decay itself. They could not understand why the teeth of growing youngsters seemed most in danger, or why such poisonous metals as mercury or lead should make their effect especially apparent in the teeth.

At long last, Professor Arnold Mason is on the trail. Decay begins, it seems, with the inability of the system to produce a glandular substance called amylese, which mixes with the saliva.

Growing children especially have this trouble, and sugar would seem bad for the teeth because it defeats the amylese. Soon, if you cannot produce your own amylese, science may make it for you; perhaps it will be mixed with a toothpaste to hold decay at bay for years.

More than ever before, we know to-day that prevention is better than a tooth out. People are going to the dentist more often. Rising National Health dental benefit bills are proof alone that many people are having their teeth overhauled every six months. Regular examination stops decay before it has time to get a hold.

The science of the consulting chamber itself is changing. X-rays are being used to trace hidden trouble and check it in time.

Dentists of the modern school take "candid camera" snapshots of the teeth. People speak of pain from the nerve of a tooth, when in reality a tooth has many nerves. Now there is a substance which, applied to the surface of the "ivory castles," makes them completely insensitive to dentists' drills.

Admittedly not yet in common use the formula was given free to the dental world by its discoverer, Professor Leroy Hartman.

Dental plates, too, are "going out." It is now possible to have jacket crowns, separate porcelain teeth exactly fitted over the base of the old. The nerve remains alive, and there are no visible clamps.

Painless dentistry is no longer merely a slogan. Injections of novocaine form the preliminary "dead spot," and the skill, tact and equipment of the modern dentist achieve the rest.

We ALWAYS write to you, if you write first to "Good Morning," c/o Press Division, Admiralty, London, S.W.1

HOME TALK for C.P.O. John Brownlie

SORRY to open your message from home with a grumble, C.P.O. John Brownlie, but, by special request of your Mother, we point out that letters from you have not been very regular of late.

Everything at 401 Keppock Hill Road, Glasgow, is as you left it, and your Mother is happy about everything but your absence.

Remember Mrs. Brown and Maisie? They send good wishes to you. And more greetings come from your cousins, Johnny and Francis.

The lady of the house mentioned the names of some of your shipmates who went home with you last leave. If Roy Vincent, Jim, or any of the other boys get to Glasgow, your Mother promises a hearty welcome for them.

Peggy writes fairly often, and invariably asks about you. She, too, suggests a letter or two from you.

We've given you the news you want most, John—that all is well at home—and we've complied with your Mother's request—so we'll sign off, wishing you the best of luck.

Another of the Night Watchman's "TWO-DAY" yarns by W. W. JACOBS

THE RIVAL BEAUTIES

"IF you hadn't asked me," said the night watchman, "I should never have told you; but, seeing as you've put the question point blank, I will tell you my experience of it. You're the first person I've ever opened my lips to upon the subject, for it was so eggstraordinary that all our chaps swore as they'd keep it to themselves for fear of being disbelieved and jeered at.

"It happened in '84, on board the steamer *George Washington*, bound from Liverpool to New York. The first eight days passed without anything unusual happening, but on the ninth I was standing aft with the first mate, hauling in the log, when we hears a yell from aloft, an' a chap what we called Stuttering Sam come down as if he was possessed, and rushed up to the mate with his eyes nearly starting out of his 'ed.

"'There's the s-s-s-s-s-s-sis-sis-sip!' ses he.

"'The what?' ses the mate.

"'The s-s-sea-sea-sssssip!'

"'Look here, my lad,' ses the mate, taking out a pocket-handkerchief an' wiping his face, 'you just tarn your 'ed away till you get your breath. It's like opening a bottle o' soda water to stand talking to you. Now, what is it?'

"'It's the sssssis-sea-sea-sea-sarpint!' ses Sam, with a bust.

"'Rather a long un by your account of it,' ses the mate, with a grin.

"'What's the matter?' ses the skipper, who just came up.

"'This man has seen the sea-sarpint, sir, that's all,' ses the mate.

"'Y-y-yes,' said Sam, with a sort o' sob.

"'Well, there ain't much doing just now,' ses the skipper, 'so you'd better get a slice o' bread and feed it.'

"The mate bust out larfing, an' I could see by the way the skipper smiled he was rather tickled at it himself.

"The skipper an' the mate was still larfing very hearty when we heard a dreadful 'owl from the bridge, an' one o' the chaps suddenly leaves the wheel, jumps on to the deck, and bolts below as though he was mad. T'other one follows 'm a'most d'reckly, and the second mate caught hold o' the wheel as he left it, and called out something we couldn't catch to the skipper.

"'What the d——'s the matter?' yells the skipper.

"The mate pointed to starboard, but as 'is 'and was shaking so that one minute it was pointing to the sky an' the next to the bottom o' the sea, it wasn't much of a guide to us. Even when he got it steady we couldn't see anything, till all of a sudden, about two miles off, something like a telegraph pole stuck up out of the water for a few seconds, and then ducked down again and made straight for the ship.

"Yes, he used to be in Ladies' Underwear, but he WOULD work his way up."

"Sam was the fust to speak, and, without wasting time stuttering or stammering, he said he'd go down and see about that bit o' bread, an' he went afore the skipper or the mate could stop 'im.

"In less than 'arf a minute there was only the three officers an' me on deck. The second mate was holding the wheel, the skipper was holding his breath, and the first mate was holding me. It was one o' the most exciting times I ever had.

"'Better not give him any cause for offence,' ses the mate, shaking his head.

"'I wonder whether it eats men,' ses the skipper. 'Perhaps it'll come for some of us.'

"'There ain't many on deck for it to choose from,' ses the mate, looking at 'im significant like.

"'That's true,' ses the skipper, very thoughtful; 'I'll go an' send all hands on deck. As captain, it's my duty not to leave the ship till the *last*, if I can anyways help it.'

"How he got them on deck has always been a wonder to me, but he did it. He was a brutal sort o' a man at the best o' times, an' he carried on so much that I s'pose they thought even the sarpint couldn't be worse. Anyway, up they came, an' we all stood in a crowd watching the sarpint as it came closer and closer.

"'Better fire the gun at it,' ses the skipper, in a trembling voice, looking at the little brass cannon we had for signalling.

"We reckoned it to be about a hundred yards long, an' it was about the most awful-looking creetur you could ever imagine. If you took all the ugliest things in the earth and mixed 'em up—gorillas an' the like—you'd only make a hangel compared to what that was. It just hung off our quarter, keeping up with us, and every now and then it would open its mouth and let us see about four yards down its throat.

"'It seems peaceable,' whispers the fust mate, arter awhile.

"'P'raps it ain't hungry,' ses the skipper. 'We'd better not let it get peckish. Try it with a loaf o' bread.'"

"The cook went below and fetched up half-a-dozen, an' one o' the chaps, plucking up courage, slung it over the side, an' afore you could say 'Jack Robinson' the sarpint had woffled it up an' was looking for more. It stuck its head up and came close to the side just like the swans in Victoria Park, an' it kept that game up until it had 'ad ten loaves an' a hunk o' pork.

"'I'm afraid we're encouraging it,' ses the skipper, looking at it as it swam alongside with an eye as big as a saucer cocked on the ship.

"'P'raps it'll go away soon if we don't take no more notice of it,' ses the mate. 'Just pretend it isn't here.'

"Well, we did pretend as well as we could; but everybody hugged the port side o' the ship, and was ready to bolt down below at the shortest notice; and at last, when

(Continued on Page 3)

QUIZ for today

1. A hydria is a health resort, many-headed monster, Greek water-pot, animalcule, garden shrub?
2. What is the difference between (a) fulgurate and (b) fulminate?
3. What and where was the Tethys?
4. What newspaper is called the "Thunderer," and why?
5. What are the two longest aphabets, and how many letters do they contain?
6. Which of the following is an intruder, and why? Tunny, Cod, Sturgeon, Porpoise, Shark?

Answers to Quiz in No. 550

1. Dutchwoman.
2. A prehistoric continent linking together S. America, Africa and Australia.
3. Horse.
4. Italian; 21.
5. George Fox, 1666.
6. Blacksmith is a craftsman others are merchants.

I get around

RON RICHARDS' COLUMN

A FURTHER example of the way in which films were helping to win the war was mentioned by Lieut.-Col. F. O. Hodgkinson, speaking in Edinburgh on the work of the S.E.A.C. British Army Film Unit.

Some of the first films to be taken of the campaign were very disappointing, he said. That was because of the many difficulties with which they were faced—such as taking pictures in heavy rain and in jungle conditions and the problem of trying to keep films cool.

"But for some time the Unit has been producing newsreel pictures to show to the people at home," he went on. "These were made at considerable risk, casualties being high."

★

COL. HODGKINSON mentioned that the cameramen were armed, but said they did not get much chance to use their weapons. Just as they would be about to do so, they would see something that was worth while filming.

Newsreels from Burma were often crushed out, he said, because pictures were urgently wanted of the fighting on the Western Front in Europe.

"But in due time we shall have quite a lot of pictures from Burma—not only newsreels, but features."

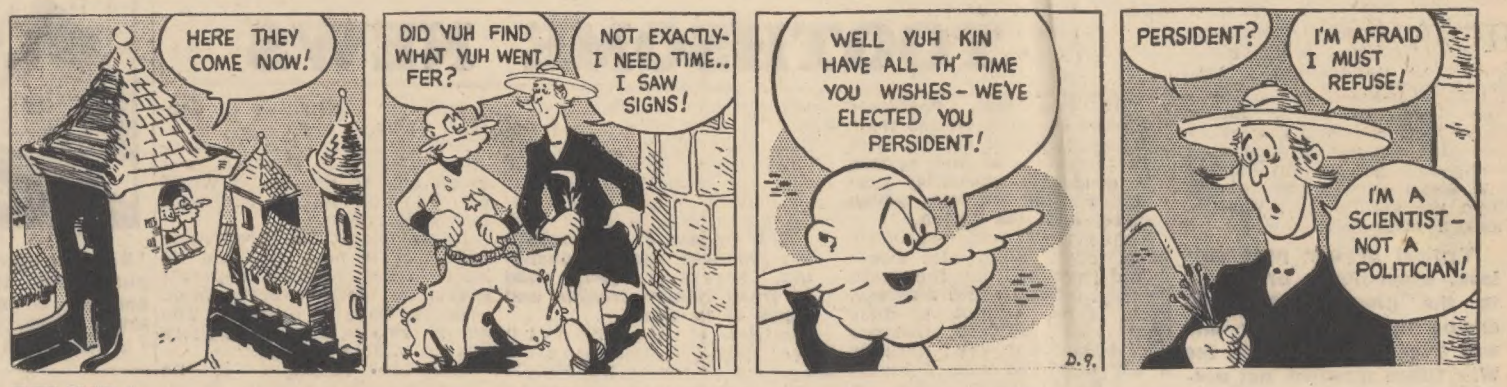
Col. Hodgkinson added that films produced by the S.E.A.C. Unit were shown to the troops prior to an offensive, for the purpose of letting them know the kind of country that lay ahead.

★

"ANDY," exclaimed a Lieutenant, meeting an ex-dodo East, "what are you doing here?"

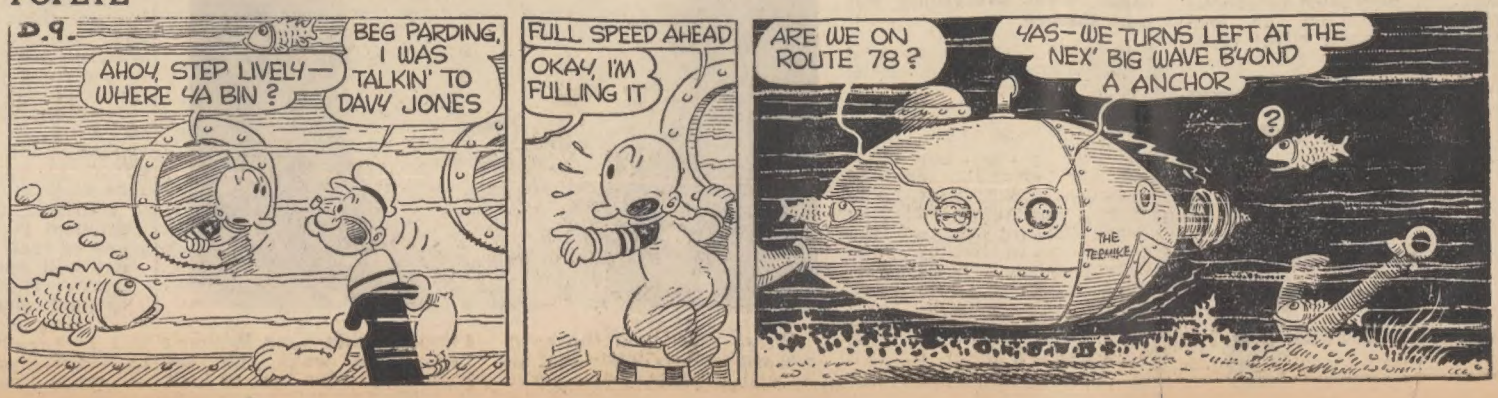
"I work for the sultan," replied Andy. "I sit at the door with a bowl of water. Along comes a line of beautiful girls belonging to the sultan. I dip my finger in the water and flick some on each. When one sizzles I'm through for the day."

BEELZEBUB JONES



BELINDA

POPEYE



WANGLING WORDS—490

1. Insert consonants in *A**E*IA and *O*U**I*E and get two flowers.
2. Here are two animals whose syllables, and the letters in them, have been shuffled. What are they?

TOREG — DABERT.

3. If "**expression**" is the "**press**" of the features, what is the press of (a) Ideas, (b) Dejection?
4. Find the two forms of poetry hidden in: **It was because he missed his step, I can see now, that my son netted the ball so neatly.**

Answers to Wangling Words—No. 489

1. MAGNOLIA, ARBUTUS.
2. RABBIT—BULLOCK.
3. (a) Investment, (b) Divest.

THE RIVAL BEAUTIES

(Continued from Page 2)

the beast got craning its neck up over the side as though it was looking for something, we gave it some more grub. We thought if we didn't give it he might take it, and take it off the wrong shelf, so to speak. But, as the mate said, it was encouraging it, and long arter it was dark we could hear it snorting and splashing behind us, until at last it 'ad such an effect on us the mate sent one o' the chaps down to rouse the skipper.

"'**I don't think it'll do no 'arm,' ses the skipper, peering over the side, and speaking as though he knew all about sea-sarpints and their ways.**

"'**S'pose it puts its 'ead over the side and takes one o' the men,' ses the mate.**

"'**Let me know at once,' ses the skipper firmly; an' he went below agin and left us.**

"Well, I was jolly glad when eight bells struck, an' I went below; an' if ever I hoped anything I hoped that when I got up that ugly brute would have gone, but, instead o' that, when I went on deck it was playing alongside like a kitten a'most, an' one o' the chaps told me as the skipper had been feeding it agin.

"'It's a wonderful animal,' ses the skipper, 'an' there's none of you now but has seen the sea-sarpint; but I forbid any man here to say a word about it when we get ashore.'

"'Why not, sir?' ses the second mate.

"'Becos you wouldn't be believed,' said the skipper sternly. 'You might all go ashore and kiss the Book an' make affidavits an' not a soul 'ud believe you. The comic papers 'ud make fun of it, and the respectable papers 'ud say it was seaweed or gulls."

"**Why not take it to New York with us?**" **ses the fust mate suddenly.**

"'**What?**' **ses the skipper.**

"'**Feed it every day,' ses the mate, getting excited, 'and bait a couple of shark hooks and keep 'em ready, together with some wire rope. Git 'im to foller us as far as he will, and then hook him. We might git him in alive and show him at a sovereign a head. Anyway, we can take in his carcase if we manage it properly.'**

"'**By Jove! if we only could,' ses the skipper, getting excited too.**

"'**We can try,' ses the mate. 'Why, we could have noosed it this mornin' if we had liked; and if it breaks the lines we must blow its head to pieces with the gun.'**

"It seemed a most eggstraordinary thing to try and catch it that way; but the beast was so tame, and stuck so close to us, that it wasn't quite so ridiculous as it seemed at fust.

"Arter a couple o' days nobody minded the animal a bit, for it was about the most nervous thing of its size you ever saw. It hadn't got the soul of a mouse; and one day when the second mate, just for a lark, took the line of the foghorn in his hand and tooted it a bit, it flung up its 'ead in a scared sort o' way, and, after backing a bit, turned clean round and bolted.

"I thought the skipper 'ud have gone mad. He chucked over loaves o' bread, bits o' beef and pork, an' scores o' biskits, and by-and-bye, when the brute plucked up heart an' came arter us again, he fairly beamed with joy. Then he gave orders that nobody was to touch the horn for any reason whatever, not even if there was a fog, or chance of collision, or anything of the kind; an' he also gave orders that the bells wasn't to be struck, but that the bosen was just to shove 'is 'ead in the fo'c's'le and call 'em out instead.

READ THE ENDING TO-MORROW

TO-DAY'S LAUGH

A well-set-up young man was Bill Parker. Always buying new suits and so on. His tailor was fitting a new pair of trousers, and pointed to the reflection in the mirror.

"There you are, sir," he said. "What about that for a fit, eh? They go on you like gloves."

Bill Parker was rather particular, and he did not like what he saw in the mirror.

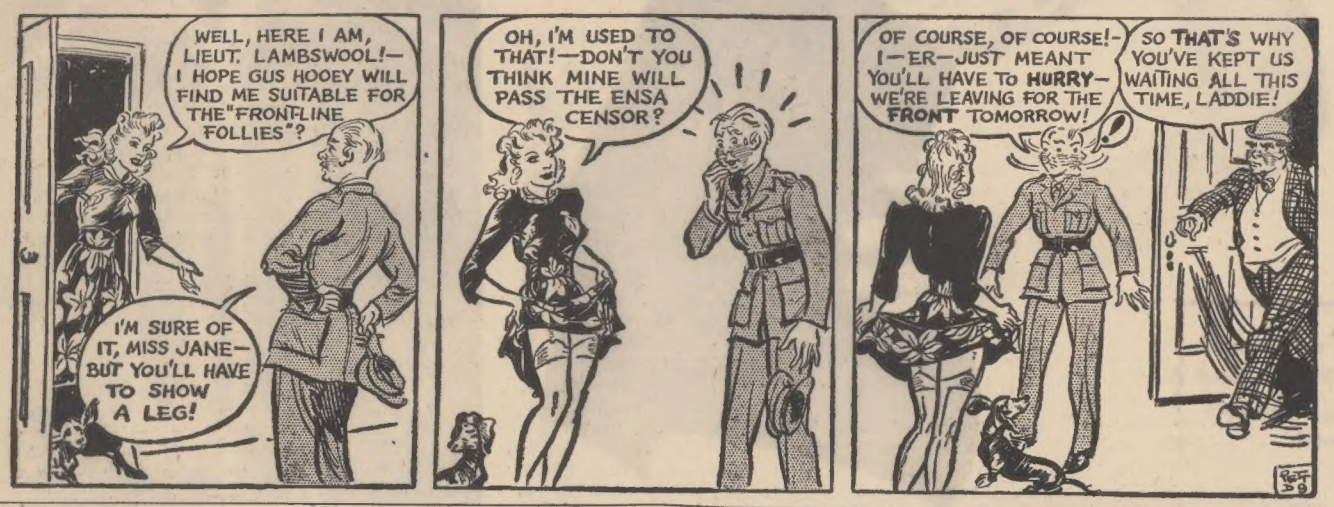
They do, he agreed shortly. "But I'd much rather they went on me like trousers."

* * *

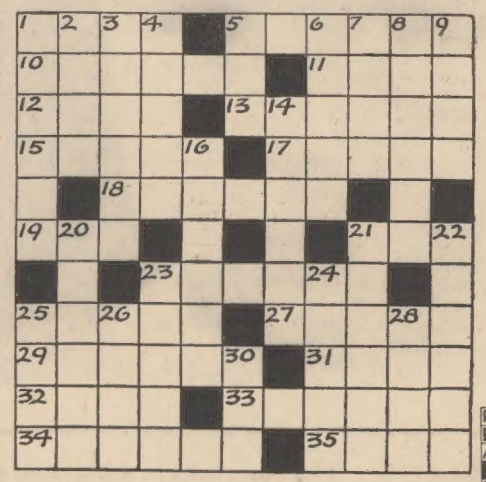
Employer (to office boy): "How do you find yourself these cold mornings, Tommy?"

"Quite easily, thank you, sir. I just throw back the bedclothes, and there I am!"

JANE



CROSSWORD CORNER



CLUES ACROSS.

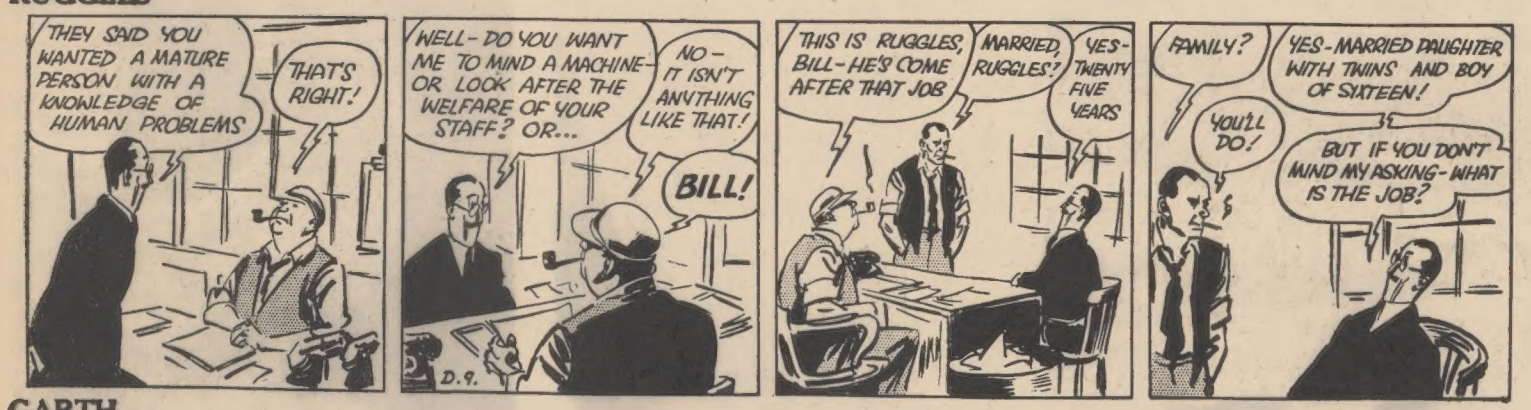
1 Washing substance.
5 Duped.
10 Pigment.
11 Crafty.
12 Objects.
13 Property.
15 Cook.
17 Transferred.
18 Soften.
19 Girl's name.
21 Tot.
23 Chevron.
25 Headless pin.
27 Heals.
29 Fruit.
31 Hub.
32 Number.
33 Bed.
34 Vigour.
35 Dispatched.

CLUES DOWN.

1 Rare. 2 One of U.S.A. 3 Former fleet. 4 Police party. 5 Remuneration. 6 Frequently. 7 Put aboard. 8 Stretch. 9 Changed colour. 14 Of the stage. 16 Gossip. 20 Stringed instrument. 21 Expose to air. 22 Abandon. 23 Cut. 24 Kicks. 25 Performed. 26 Drink. 28 Level. 30 Wily.

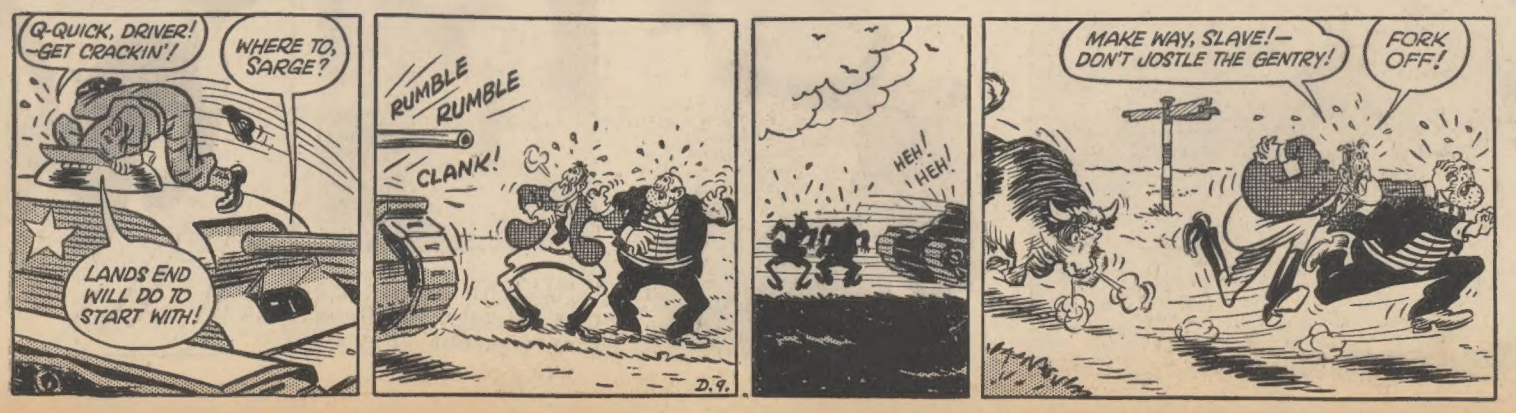
PAD	PAL	FAT								
ELUDE	EXILE									
AIRINGS	DIG									
	VASSALAGE									
DEBT	SILENT									
S	LET	EAT	E							
OPENED	SEWN									
R	DAIS	DID								
HOMESPUN	GO									
ANODE	RUN	N								
YEW	RAFTERS									

RUGGLES



GARTH

JUST JAKE



WHAT'S IN A NAME?

FEW film stars keep their own names on the screen, and indeed many of those now famous might have difficulty in remembering what they were once called! Here are a few stars, picked at random, with their real names alongside:—

Robert Taylor ..	Spangler Arlington Brough
Mary Pickford ..	Gladys Smith.
Veronica Lake ..	Constance Keane.
Marlene Dietrich	Mary Magdelene von Losh.
Barbara Stanwyck	Ruby Stevens.
Ginger Rogers ..	Virginia McGrath.
Mary Astor ..	Lucille Langhanke.
Myrna Loy ..	Myrna Williams.
Claudette Colbert	Lily Cauchion.
Mickey Rooney ..	Joe Yule, jun.

Dick Gordon

"What is it, darling—a procession?"

Good Morning

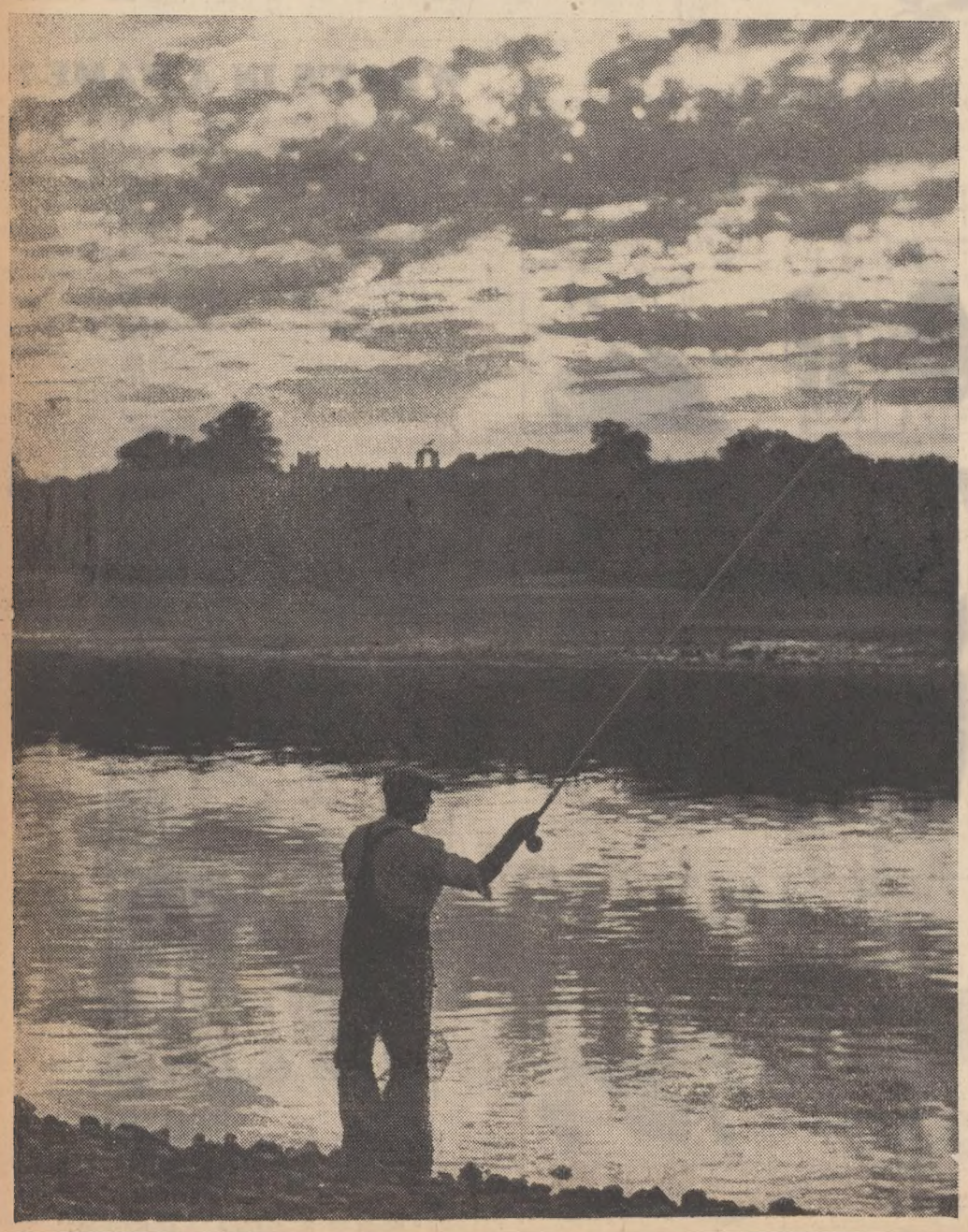
"What a fuss they make when a girl puts her hair up for the first time. Anyone would think they'd never seen an ear before."

ONE LITTLE MAID FROM SCHOOL, IS SHE

The long-legged ragamuffin with the braces and the grin is Mary Anderson, 20th Century-Fox starlet. Here's a 20th Century "Yum-Yum" that's happy in her work — homework included!

"Not a spot of sand to be seen as far as our combined eyes can reach. Wherever are we going to put our heads if trouble should blow up?"

THIS ENGLAND. The sun sinks in a blaze of glory beyond the Thames valley, and leaves the world to darkness, and the lone fisherman softly casting in the deepening shadows. The fish are rising, and chances seem good.



"He'll be home any minute now. I believe that was the click of the gate then."

Printed and Published by Samuel Stephen, Ltd., 2, Belvedere Road, London, S.E.19.